iLERNA.



IMAGEN PARA EL DIAGNÓSTICO Y MEDICINA NUCLEAR

ENGLISH VOCABULARY

IMAGING TECHNIQUES

X-ray: A form of electromagnetic radiation used to create images of the inside of the body, especially bones and joints.

Computed Tomography (CT): A diagnostic imaging procedure that uses specialized X-ray equipment to produce cross-sectional images of the body.

Magnetic Resonance Imaging (MRI): A technique that uses strong magnetic fields and radio waves to generate detailed images of the organs and tissues inside the body.

Ultrasound: A medical imaging technique that uses high-frequency sound waves to create images of internal organs and structures.

Positron Emission Tomography (PET): A nuclear medicine imaging technique that produces 3D images of functional processes in the body.

Single-Photon Emission Computed Tomography (SPECT): A nuclear imaging technique that uses gamma rays to create 3D images of the distribution of a radioactive tracer in the body.

Fluoroscopy: Real-time imaging technique that uses X-rays to observe the movement of internal structures or the passage of contrast material through the body.

Mammography: X-ray imaging of the breast used to detect and diagnose breast cancer and other breast abnormalities.

IMAGING MODALITIES AND EQUIPMENT

PACS (Picture Archiving and Communication System): A medical imaging technology that provides storage and convenient access to digital medical images.

DICOM (Digital Imaging and Communications in Medicine): Standard format for medical imaging files, enabling compatibility and interoperability between imaging equipment and information systems.

Radiography: The use of X-rays or other radiation to create images of the internal structure of a non-transparent object.

Fluorescence Imaging: A technique that uses fluorescent dyes to visualize structures and processes in biological systems.

Contrast Agent: A substance used to enhance the visibility of internal structures or organs in imaging studies, such as iodine-based contrast for CT scans or gadolinium-based contrast for MRI.

IMAGE ANALYSIS AND INTERPRETATION

Radiologist: A medical doctor who specializes in diagnosing and treating diseases and injuries using medical imaging techniques.

Image Reconstruction: The process of creating a 3D image from multiple 2D images obtained through imaging techniques.

Computer-Aided Diagnosis (CAD): Software systems designed to assist radiologists in interpreting medical images by highlighting potential abnormalities.

Quantitative Imaging: Analysis of imaging data to measure physiological functions or characterize tissue properties quantitatively.

Image Quality Assurance: Processes and protocols to ensure that medical images are of high quality and suitable for accurate diagnosis.

RADIATION SAFETY AND PROTECTION

ALARA Principle: "As Low As Reasonably Achievable" principle for minimizing radiation exposure to patients and healthcare workers.

Radiation Dose: The amount of radiation energy absorbed by the body during imaging procedures.

Lead Apron: Protective garment worn by healthcare providers to shield against radiation exposure during imaging procedures.

Specialty Areas and Applications

Interventional Radiology: A subspecialty of radiology that uses imaging techniques to guide minimally invasive surgical procedures.

Neuroradiology: A subspecialty of radiology focusing on the diagnosis and treatment of disorders of the brain, spine, and nervous system.

Musculoskeletal Imaging: A subspecialty of radiology focusing on the diagnosis and treatment of bone, joint, and soft tissue disorders.

Cardiovascular Imaging: A subspecialty of radiology focusing on imaging techniques for diagnosing and treating heart and blood vessel diseases.

REGULATORY AND ETHICAL CONSIDERATIONS

Radiation Safety Officer (RSO): A certified professional responsible for overseeing radiation safety programs in healthcare facilities.

Informed Consent: Permission granted by a patient to undergo a specific medical intervention, including imaging procedures, after receiving detailed information about the procedure.

Health Insurance Portability and Accountability Act (HIPAA): U.S. legislation that protects the privacy and security of patients' health information.

EMERGING TECHNOLOGIES AND INNOVATIONS

Artificial Intelligence (AI) in Imaging: Integration of AI algorithms for image analysis, pattern recognition, and decision support in diagnostic imaging.

3D Printing in Radiology: Use of 3D printing technology to create patient-specific models and surgical guides based on medical imaging data.

Virtual Reality (VR) and Augmented Reality (AR) in Imaging: Applications of VR and AR technologies for training, surgical planning, and patient education using medical imaging data.

